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ABSTRACT

Alberta (Canada) is experiencing a phenomenon common to many other regions the world over: there is a movement of population away from rural areas to urban centers. Such migration has a profound impact on rural schools and school systems in these areas, including a decrease in school population, school staff, and school programs. In an attempt to address this problem, the Alberta government established a distance education project in 1987 to deliver, via diverse means, high school courses in quality and quantity sufficient to allow students to graduate. Three forms of technology were incorporated: facsimile transmissions (FAX), telephones, and teleconferencing convenors. Electronic mail and electronic bulletin boards were added subsequently. The project resulted in a shift in emphasis on teacher roles to increased independent study. However, due to the traditional instructional orientation of project personnel and students, patterns of use of the new technologies revealed a tendency to stay with the more familiar telephone and FAX machines. (9 references) (DB)

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An Evaluation of a Distance Education Project Designed to Provide Equity in Rural Alberta High Schools

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ABSTRACT

Distance Delivery in Small Alberta Schools

Alberta is experiencing a phenomenon common to many other regions the world over. There is a movement of population away from rural areas to urban centers. This occurrence impacts greatly on schools and school systems in these rural areas. As the community shrinks so to does the the school population shrink with a concommittant reduction in the the size of the school staff. This situation often results in fewer courses offered in the school. The school program is as a result less comprehensive. Parents of these students then tend to look elsewhere for programs more likely to satisfy their children's needs. The issue of equity in education becomes prominent and one which politically must be dealt with.

The Alberta government, in an attempt to address this problem, established a project to deliver, via diverse means, high school courses in quality and quantity sufficient to allow students to graduate. The paper provides an overview of the changing roles of educators in the project schools and the relative effectiveness of the instructional strategies being employed.

Introduction

The need to address the problem of equal educational opportunities is a problem faced by governments and educational agencies the world over. This problem can be viewed from several perspectives, including financial exigency, geographic locations, cultural barriers, shortages of distance education expertise and attitudinal barriers. This discussion will focus primarily on a phenomenon confronting many rural educational jurisdictions; namely, small schools are often unable to offer comprehensive programs. This topic has received a great deal of attention in the distance education literature. The issue of providing equal opportunities for all learners in a jurisdiction has been discussed by many authors in the field including Hansen (1987), Rios (1987), Barker (1987), Marshall (1987), Barker (1986), Martin (1986), and many others.

The problem in the Province of Alberta, as elsewhere, is related to the increasingly common phenomenon of populations shifting from small rural communities to larger urban centers. This problem exists for many small, though not exclusively, rural schools. Large urban school districts also face this problem where families with school aged children are moving to suburbs while inner city facilities stand virtually empty. Forces, other than those of employment-related bases, are also impacting small rural schools. These schools generally have greater difficulty in recruiting and retaining qualified teachers and other educational specialists. The low populations translates into low course enrollments, especially in low incident courses. This in turn results in the cost-prohibitive effect of having to hire enough teachers to staff sufficient programs to allow students sufficient credits in order to graduate.

The Alberta Model

In Alberta, as elsewhere, the demographics of the rural school districts is characterized by decreasing and shifting populations. The Government of Alberta in 1987 established a committee composed of educators and politicians to investigate problems and solutions impacting the small rural high schools. The outcome was the generation of the Distance Learning in Small Schools (DLSS) Project, formed through the government department, Alberta Education. The task of this planning group was to design and supervise the implementation of a developmental program to address the issue of equality in education in small rural schools, taking into consideration

the instructional, economic and political factors associated with high school education and its importance to the community. Phase 1 took place in the academic year 1987-88, and 13 schools in 11 school districts in the southeastern sections of the province participated. Each participating jurisdiction was expected to provide a tutor/marker for one subject area , and each participating school was expected to assign staff time to the position of distance learning coordinator. Schools could also have a intern teacher either to work on the project or to work elsewhere in the school to free regular staff to work on the project. Each school was equipped with a facsimilie machine (FAX) for electronic transmission of student work to and from tutor/markers, with teleconferencing convenors, and with satellite dishes if none was already in place. The basic course materials used for project courses were secured from the Alberta Correspondence School, which has packaged courses paralleling those employed in regular classrooms. In some cases these courses were modified or augmented by tutor/markers. Phase 2 of the project ran in the 1988/89 school year and involved 28 schools in 16 school districts. The major additional technology to be integrated into the DLSS Project in Phase 2 was an electronic mail/bulletin board system. Phase 3 of the project began with the commencement of the 1989/90 school year. The authors were contracted to evaluate the effectiveness of the delivery systems, the instructional strategies and cost-effectiveness of the project.

Organizational Factors

This project espouses "distance education" as it's identifying characteristic. This does legitimately link the project to other efforts in several countries to deal with educational offerings to small numbers of students distributed over wide geographic areas. It also makes public description of the project easier through focusing on concrete variables associated with the technology. It is the view of the authors, however, that while the label "Distance Education" is a useful one, it also tends to mask some of the most significant thrusts of the project, and if one were to concentrate upon them solely in terms of the implementation of distance learning technology, one would miss some key elements.

The challenge is to increase course offerings to student in schools where the number of teacher is too small to offer all courses that might be desired or desirable. Economic reasons dictate against simply increasing the number of teachers. Therefore, if the number of available courses is to be increased, and support is to be given to

more courses, an alternative to our traditional methods of classroom education must be found. One cannot simply add to teacher workloads.

Shifting Roles in the evolving Alberta Model

The first shift is from largely teacher-directed and delivered education to independent study. This permits greater variety of courses, while reducing one type of teacher responsibility. In some subject areas it also appears possibly to transfer at least some of the record keeping and testing functions to computer. The combined reduction in teacher load can then be re-directed to a facilitator role for a large number of courses. There are still limits on the number of courses it is reasonable to expect teachers to support, and there is still the fact that a small number of teachers will not collectively have the expertise to support all the courses that a school may wish to make available to its students.

This brings us to the second aspect of the model, the need to distribute teacher support over more than one school. It is at this point that the concept of distance education enters the model. Through the use of a variety of technologies support can be offered to students in more than one school with minimal concern for geographic issues. In some cases, this may be arranged among a small cluster of two or three schools, and a teacher in one school can provide support for students in all schools in the cluster.

A third possibility where the number of students interested in taking a course may be very few and the most feasible way to support it is through a central tutor/marker serving a consortium over a wide geographic area.

Distance Delivery Strategies

Phase 1 of the DLSS Project incorporated three forms of technology to enhance the quality of instruction: facsimilie machines (FAX), telephones, and teleconferencing convenors. Electronic mail (EMail) and electronic bulletin board capabilities were added in phase 2. Provision was made for each school and each tutor/marker to have a FAX machine on a separate telephone line, a telephone and linking equipment was provided for tutor/markers to teleconference with students. Table 1.1 shows the communications systems used and the relative frequency of use during the 5 week reporting period. Answering machines were also provided for tutor/markers. The provincial educational television network, ACCESS, was

contracted to produce various video support materials for the distance education courses.

Table 1.1

Selection of communications media to contact tutor/markers as reported by students

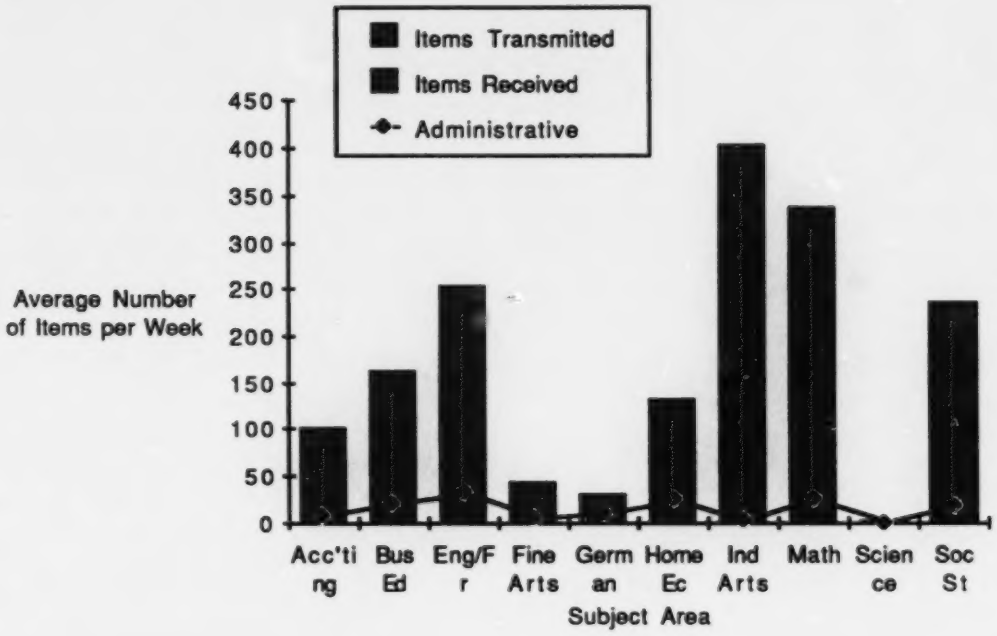
Medium	No of Students
Telephone	188
FAX	95
EMail	10

FAX Machines. A traditional disadvantage of correspondence courses is the slow turnaround due to the nature of the postal service. This was regarded as being too slow for the DLSS Project, and FAX technology appeared to be an acceptable alternative. Besides permitting rapid transmission of student work to the tutor/markers and rapid feedback to the students, the FAX machines would also serve the communication needs for matters such as exam scheduling, student programs, missing assignments and transmission to the schools of quizzes and tests.

This means of communication was clearly the dominant mode of student-tutor/marker interaction noted during phases 1 & 2. It would be reasonable to expect that the introduction of an EMail network would reduce the reliance on the FAX system but in phase 2, there remained a general preference for the FAX. As a number of school personnel explained to the evaluators, when a message is sent using a FAX, the sender has some confidence that a piece of paper has rolled out the other end and will have to be dealt with. When one uses electronic mail, one is at the mercy of the recipient to actually sign on to the system and read the awaiting message(s). Figure 1.1 shows the average number of items received and transmitted per week during the five weeks for which logs were kept. The number of items of an administrative nature is represented by a line chart overlaying the bars.

Figure 1.1

Weekly average number of items FAXed during period of logs



In all cases, with the exception of the science tutor/marker where incomplete logs were maintained, the FAXing workload corresponds closely to the number of students registered in the subjects.

Telephones and Telephone Answering Machines. It was expected that the tutor/markers would extend the traditional function of the marker in correspondence courses to that of a tutor who would communicate directly with students on a relatively frequent basis. It was expected that much of this might be voice communication, hence the telephone. Furthermore, provision was made for those occasions when schools or students might try to reach the tutor/markers when they weren't available by placing an answering machine in each tutor/marker's home. These were found to be frequently used and been removed. During phase 1 of the project, it was observed that most of the telephone contact was among adults involved in the project (see figure 1.3). Students generally were not in direct

telephone contact with the tutor/markers. In phase 2 the evaluators were interested in whether the telephone contacts between students and tutor/markers increased and to see the comparative usage of telephone and electronic mail. Figure 1.2 indicates that the telephone was definitely preferred. This was not unexpected given that the EMail system was quite new.

Figure 1.2

Comparison of telephone use with email use.

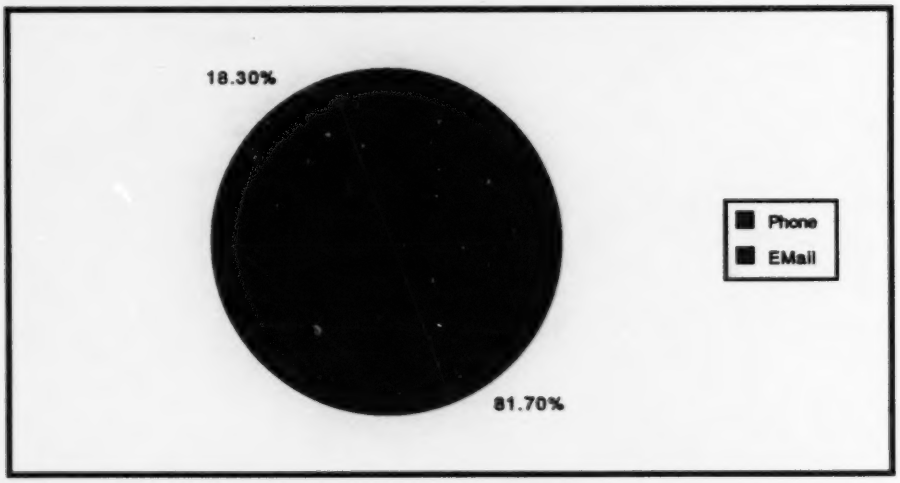


Figure 1.3

Division of telephone/email contacts by audience

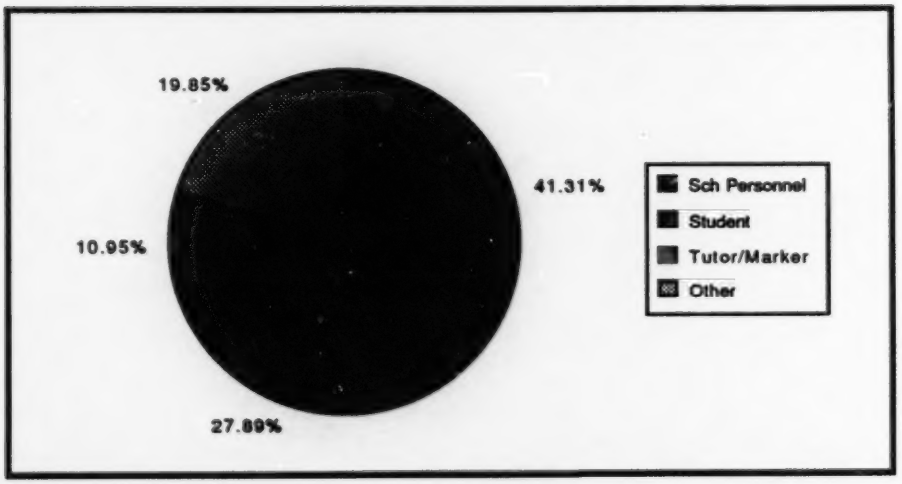


Table 1.2 shows the relative frequency of calls from schools to tutor/markers. It should be noted that a very low percentage (5%) of the calls were initiated by students.

Table 1.2

Estimates of percentage of calls initiated by school-based individuals

Category	Percentage
Coordinators/Principal Coordinators	80%
Principals	15%
Students	5%

Teleconferencing. Two-way audio teleconferencing was originally thought to be necessary to allow for interactive instruction. In this way introduction to new concepts, remediation, and review could take place in a more classroom-like situation. Students could ask questions, give opinions and responses and interact with peers. This technology is used extensively elsewhere and has, in many instances, proven to be an adequate substitute for normal face-to-face instructional situations. Certainly, in the project schools, where options are very limited, this application could prove to be most beneficial. The actual amount of use project-wide has been limited however. It was found that only four of ten tutor/markers conducted teleconferences. It would appear that the greatest barriers were individual school timetables where principals were reluctant to remove students from regular classrooms for teleconferences.

Summary

While the project involves a variety of technologies to support the distance learning features of the DLSS Project, it is clear that some elements are more heavily employed than others. Clearly, the orientation of the project personnel and students has been in more traditional instructional strategies, resulting in patterns of use which corresponds to familiarity. Therefore, the pattern which emerged to this point has the project relying most heavily on the use of the

telephone and the FAX with the remaining technologies being utilized to a far lesser extent. Another pattern which appears to have surfaced is the heavy use of the technologies by the project personnel rather than by the students.

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